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- (71) Sökande First Aid Card Enterprises AB, Eskilstuna SE
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Gunilla Larsson

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Apparatus and method for storing and distributing information in an emergency situation

Technical field of the invention

5 The present invention relates to an apparatus and method for storage and distribution of individualised information in case of an emergency situation, wherein a mobile communication terminal is provided with a storage means in which individualised information concerning user specific treatments and desires in case of an emergency situation can be stored.

Background of the invention

10 A large number of ideas are currently available generally relating to the need for emergency medical staff, physicians and paramedics to be informed about the needs of their patients. Various means are used today in order to provide them and family members of patients with health history information and, if applicable, specific medical desires of patients. Some people suffering from chronic illnesses, such as haemophilia, epilepsy or extreme allergy wear bracelets, necklaces, badges or wristwatches symbolising a specific chronic disease that need special attention from a treating paramedic during an emergency situation. However, a person suffering from one of the above illnesses may not want to display this fact publicly, and therefore too often tend to refuse wearing the symbolising necklace or badge for instance.

25 In addition to that, many people carry small paper notes in their wallets or purses with information regarding their willingness or ability to donate organs or tissue for either of transplantation or medical purposes, possibly with specific limitations, which is also a form of displaying specific treatments and individual desires in case of an emergency situation.

30 When paramedics or emergency medical staff after an emergency call arrive at a person who has been involved in an accident or an emergency situation, they must

act quickly and without much hesitation. It is crucial that the staff quickly determines a correct diagnosis and applies appropriate treatment in order to save peoples lives or at least minimise their injuries and damages. In particular, that is the case when a person is either unconscious or has difficulty in communicating their physical condition. Sometimes even basic medical treatment can be difficult in such a situation. During a majority of accidents, not the least on the road at the scene of a traffic accident, or in the home at a residential emergency, responding medical staff could more certainly and appropriately treat the persons involved in the accident and save more lives if medical history and other emergency information were readily available and easily accessible.

Moreover, during a medical emergency, medical staff members are sent out to the accidental scene immediately after an emergency called has been made. Even is the information about identities and specific requirements of people involved in the accident could be available, the emergency medical staff members do not have the time to wait for information to be gathered about a possibly involved person's medical history or current medical condition. To establish a correct diagnosis and apply the appropriate treatment is essential. This requires that the emergency medical staff members know whether the patient suffers from any chronic illnesses, whether the patient has any allergies, and other relevant information in the patient's medical history. A further complication is that the patient himself or herself often is incapacitated and cannot communicate information about the his or her medical history to the emergency medical staff or to the person who makes the emergency telephone call, a person who usually has little or no medical training.

Hence, there is no doubt a continuing need for collecting, storing and making valuable and correct information readily available to medical emergency personnel and others in case of an emergency situation.

Summary of the invention

The object of the present inventions is to achieve this aim, and simultaneously alleviate at least some of the drawbacks and shortcomings of prior art in the same technical field.

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This is accomplished by means of an apparatus and method for storage, display and distribution of individualised information in case of an emergency situation, wherein a mobile communication terminal is provided with a storage means in which individualised information concerning user specific treatments and desires in case of an emergency situation can be stored and updated by a user, the apparatus comprising, transmitting means associated with the mobile communication terminal, by means of which connection is established between the mobile communication terminal and a base station, the base station being adapted to receive updated information of the storage means of the mobile communication terminal at regular intervals,

15 characterised in that

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the mobile communication terminal is provided with a triggering means, which when activated transmits information from the storage means to a base station or any other receiving means.

One of the advantages of the present invention is that it provides rapid access for paramedics, physicians and emergency medical staff after an emergency call to a person's current medical information in emergency situations.

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Another advantage of the present invention is that it uses already available portable data storage means, that contains and distributes current personal medical information that is easily identifiable and easy to locate in the vicinity or the person involved in for instance a traffic accident. Two of such already available storage means are mobile communication terminals and smart cards, which could be integrally constructed with one of the person's credit cards. Moreover, conceivable stor-

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age means could be contained in vehicles or various gates to be passed when checking in an aircraft or a hotel for example. The present invention provides involved personnel with the stored and updated medical information record that allows emergency medical personnel to faster begin appropriate medical treatment based on current medical information of incapacitated persons. In emergency response situations such a portable data storage device is carried or worn by a person and can be immediately used by anyone who finds the person involved in an accident or emergency situation and makes the emergency telephone call. The portable data storage device contains current medical information specific to the person wearing the data storage device. A mobile communication terminal, such as any kind of handheld device accesses and displays the medical information contained in the portable data storage means. A short message service could be sent as a request so as to retrieve the information stored in information records associated with the mobile communication terminal according to the invention.

A database system relating to the apparatus according to the present invention includes a central database system in communication with at least one distributed database for co-ordination of the medical information records on a regional, national or international scale. The database system also includes the ability for any user, who has proven his identity when correctly logging on to the system, to update personal medical records so that the records contain current personal medical information, and the ability to record the medical records on the portable data storage device.

One of the significant and principle advantages of the present invention will hence be most appreciated by skilled persons in the art, namely that the apparatus and method according to the invention is to be used for collecting information and information updates from users. The information will be distributed on request via a storage database in association with a mobile communication terminal to emergency

personnel in order to assist them in better handling emergency situations in a fast, efficient and appropriate manner.

Brief description of the drawings

5 The above and further features, advantages and benefits of the present invention will be apparent upon consideration of the following detailed description, taken in conjunction with the accompanying drawings, in which like reference characters and figures refer to like parts throughout, and in which:

10 Fig 1 illustrates a schematic view of the apparatus in accordance with the present invention.

Fig 2 is a flowchart depicting the method for updating and transmitting information sequentially according to the invention.

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Fig 3 is a flowchart that depicts the display and distribution of information in accordance with the present invention.

Detailed description of embodiments

20 The following description is of the best mode presently contemplated for practising the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of describing the general principles of the invention. The scope of the invention should be ascertained with reference to the issued claims.

25 Fig 1 illustrates a schematic view of the apparatus in accordance with the present invention. A central storage server or database 10 is depicted which is able to communicate with either or both of distributed databases 20, 22 and external computer terminals 50. The external computers terminals access a certain storage space with information to be input or updated provided the user authorises and authenticates himself correctly. Connection is made via the Internet or any other global intercon-

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necting network via connecting links. Conceivable links for use are various wired and wireless transmission technologies, such as access technology based on infra-red, Bluetooth or wireless-LAN.

5 Connection means and methods used in association with the present invention will of course develop with new and emerging access technologies. The distributed databases are bi-directionally connected with radio base stations 30, 32, 34 communicating directly with a number of mobile communication terminals 40-45. Moreover, the mobile communication terminals may communicate internally on peer-to-peer
10 basis via radio frequency or other transmission technologies. this may be most useful between people who are involved in an accident and witnesses who are about to make emergency phone calls. Possibly also in other situations, such as for receiving medical status about a certain ill person on a flight.

15 In accordance with one embodiment of the invention the user transmits the collected emergency information, to the central storage server operated by an operator or other external host of individualised information directly via his or her mobile communication terminal. To transmit the emergency information to the central storage server, the software optionally transmits the gathered information wirelessly via
20 a mobile communication network or through the Internet or a direct modem connection to the central storage server. In an alternate embodiment, the software generates a file which may be transmitted as an electronic mail attachment to the central storage server. The data could be updated and sent to the central storage server manually or automatically, i.e. at regular intervals.

25 The emergency personnel would obtain the emergency information stored in a the storage means of for instance the mobile communication terminal, possibly by using a handheld computer to access the information themselves. Alternatively, the information can be obtained by accessing the information stored locally or by accessing
30 the database at the central storage server, or by receiving the information from the

storage means of the terminal which has accessed the information stored locally or accessed the database at the central storage server. Medical staff and other people arriving at for example a traffic accident will be assisted in both identifying and sorting prioritising injured people in accordance with their actual needs, such as giving a person with a heart condition priority over a another person with similar injuries but without the enhanced risk for having a heart attack. In addition to the previously mentioned advantages, the invention is beneficial since people without extensive medical training or education receive support and assistance in managing an accidental situation. Such assistance may in certain cases be decisive for people to have the courage to prioritise and help people in an emergency situation, since the risk for making devastating mistakes is greatly reduced.

With particular reference to Fig 2, a flowchart depicts the method for transmission of information sequentially in order to have up-to-date information stored according to the invention. The method starts (S10) in that the information content of distributed databases or alternatively from the central storage database 10 is retrieved (S20) and so is locally stored information (S30). The actuality of information is compared (S40) with that of the mobile communication terminal 40-45 and external computer terminals 50 at regular intervals or as a result of a user initiative. Comparison utilising the respective time stamps of information content is a conceivable way of measuring the actuality. The comparison is made by means of state of the art mobile telecommunication technology via the radio base stations, through which the mobile communication terminals communicate with the central and distributed data bases. If different versions exist (S50), the information is updated (S60) so as to have the last version stored in the central storage database (S80) or in a local storage database (S70). Otherwise, the sequence continues and ends (S90), whereby a new sequence may begin on user command or at regular or user influenced intervals.

With reference to Fig 3, a sequence for displaying and distributing information is depicted. The sequence begins (S100) in that an inquiry is made whether the activa-

tion (S110) has been made, either on user command or at regular intervals. In case no activation has been made, the sequence returns, and otherwise, an up-to-date version of data is retrieved (S120), conceivably from a distributed database. The retrieval is followed by transmission and distribution (S130) of relevant information via any means for transmission, such as the mobile communication network, peer-to-peer or infrared to all associated terminals. Moreover, the information is displayed (S130) on a display of the mobile communication terminal. After having distributed and displayed for a predetermined period of time, the sequence may return to comparing actuality (S40) in Fig 2, and in association to that collecting, displaying and transmitting information to the distributed or central storage server. This ends the sequence (S140). A request is activated on user command, for instance by the triggering means, possibly a button, menu input or automatically as a result of activation of at least one accelerometer or gyroscopic means.

The step of collecting and transmitting the information could be made in a variety of ways. For example, in a first embodiment of the present method, the user fills out a form provided over a computer network such as the Internet. The fields of the form are then transmitted to a central storage server. According to a second embodiment, the user types in the information directly in the mobile communication terminal, from which the information is transmitted over a mobile communication network to the central storage server. The storage means includes a computer readable storage medium of any kind, such as a magnetic disc, a laser readable disc, i.e. a floppy disc, a hard drive disc, an EEPROM, a CD ROM or other similar storage media available on the market.

In any of the previously described embodiments of the apparatus according to the present invention, software is utilised to obtain the appropriate information from users and to transmit the information to the central storage server. A variety of different distribution means may be utilised to distribute the software. For example, the software may be made available for download from an interconnecting global com-

puter network such as the Internet, distributed together with new credit cards, mobile telephones or other consumer goods. Moreover, in order to create a distinctive brand profile in the automotive industry, software enabling collection, transmission and storage of specific individualised information according to the invention can be made of in association with purchase of cars and motorcycles or other vehicles. In particular automotive brands with car safety as a strong profile will be considered in the first place.

Regardless of the method used to transmit the information, the information may be updated periodically or on a real time basis. For example, the software may include a component that automatically updates the information by connecting the central storage server, either directly or via the user's Internet service provider, and sending updated files. In a further embodiment, the user's computer may use information from the user's other software applications, such as current status information, to automatically generate updated information files and transmit those updated information files to the central storage server. The central storage server could then access the database, find the corresponding data file, and overwrite the stored data with the updated data.

A medical information record system according to the present invention is constructed in accordance with state of the art database technology, preferably using a distributed database system. A distributed medical record database system is preferable since it is designed to provide rapid access to critical patient medical data for paramedics or other emergency personnel involved at an accident or emergency situation. The mobile communication terminal is part of the distributed medical record database system for generating, maintaining, and updating personal medical information records. Further to the mobile communication terminal, it may include a data viewing screen so that medical personnel or making it possible for the person who makes emergency telephone call to view a person's medical information.

Medical information stored in the storage means includes information such as subscriber personal identification number, subscriber name, date of birth, blood type, existing medical conditions, such as diabetes, epilepsy, etc, current medications, extreme sensitivities or allergies, such as nut or almond, wasp, bee, certain types of mite, birch trees, etc, allergies to medication, emergency contact phone number, physician contact number, organ donor status etc. Initial candidates for a portable data storage include elderly patients, patients with severe allergic sensitivities, epileptic patients, patients with serious heart disease, diabetic patients, etc. In case of insurance information, also such data could be used, provided the person has given his or her consent to making use of such possibly very sensitive information.

The apparatus according to the present invention includes a central processing unit, a memory , a display, hard disk storage, keyboard capability, a modem interconnect for communication between sites and possibly also a printer interface. While certain embodiments of the present invention have been shown and described it is to be understood that the present invention is subject to many modifications and changes without departing from the spirit and scope of the claims presented herein.

Claims

1. Apparatus for storage and distribution of individualised information in case of an emergency situation, wherein a mobile communication terminal is provided with a storage means in which individualised information concerning user specific treatments and desires in case of an emergency situation can be stored and updated by a user, the apparatus comprising,

transmitting means associated with the mobile communication terminal, by means of which connection is established between the mobile communication terminal and a base station, the base station being adapted to receive updated information of the storage means of the mobile communication terminal at regular intervals,

characterised in that

the mobile communication terminal is provided with a triggering means, which when activated transmits information from the storage means to a base station or any other receiving means.

2. Apparatus according to claims 1, **characterised in that**

connection is established between the mobile communication terminal and a base station for receiving updated information of the storage means on user command in addition to the regular intervals.

3. Apparatus according to anyone of claims 1-2, **characterised in that**

the base station is a radio base station used primarily for establishing connections between mobile telephones in a communication network.

4. Apparatus according to anyone of preceding claims, **characterised in that**

connection is established for information updates in a wireless communication network, such as wireless-LAN, so-called hotspot, wireless dial-up ac-

cess service or Wi-Fi access location.

5. Apparatus according to anyone of claims 1-2, **characterised in that**

5 the base station is a communication terminal with which connection is established peer-to-peer via radio frequency transmission, such as Bluetooth, or via transmission of infrared signals.

6. Apparatus according to anyone of preceding claims, **characterised in that**

10 the triggering means is a button, part of the mobile communication terminal, adapted to be pushed by the user or anyone who has access to it in an emergency situation, thereby activating transmission of the information of the storage means.

7. Apparatus according to anyone of preceding claims, **characterised in that**

15 the triggering means is an accelerometer, gyro or any other related means integrated with the mobile , by which violent handling of the mobile communication terminal, such as handling resulting from an accident, activates transmission of the information of the storage means.

20 8. Method of storing and distributing individualised information in case of an emergency situation, wherein a mobile communication terminal is provided with a storage means in which individualised information concerning user specific treatments and desires in case of an emergency situation can be stored and updated by a user, the method comprising the steps of:

25 transmitting means associated with the mobile communication terminal, establishing connection between the mobile communication terminal and a base station, the base station receiving updated information of the storage means of the mobile communication terminal at regular intervals,
characterised by

30 providing the mobile communication terminal with a triggering means,

which when activated transmits information from the storage means to a base station or any other receiving means.

9. Method according to claim 8, **characterised by**

5 transmitting information from the storage means of the mobile communication terminal to the base station or other receiving means on user command in addition to the regular intervals.

10. Method according to claim 8, **characterised by**

10 transmitting information from the storage means of the mobile communication terminal to the base station or other receiving means at intervals adaptable by the user.

11. Use of the apparatus and method according to anyone of preceding claims,
15 **characterised by**

 providing products of the automotive industry, such as cars, buses and trucks, or airline transportation industry, such as aircraft and lounges, with an apparatus according to claims 1-7, whereby users of the products utilise the method of claims 8-10.

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12. Use of the apparatus and method according to anyone of preceding claims,
 characterised by

 providing products of the cards industry, such as so-called smart cards, credit cards, payment cards, identification cards and loyalty cards, with an apparatus according to claims 1-7, whereby users of the products utilise the method of claims 8-10.

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13. Use of the apparatus and method according to anyone of preceding claims,
 characterised by

 providing products of the telecommunication industry, such as vendors

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and operators, with an apparatus according to claims 1-7, whereby users of the products utilise the method of claims 8-10.

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Summary

The present invention relates to an apparatus and method for storage and distribution of individualised information in case of an emergency situation, wherein a mobile communication terminal is provided with a storage means in which individualised information concerning user specific treatments and desires in case of an emergency situation can be stored and updated by a user. Moreover the apparatus comprises transmitting means associated with the mobile communication terminal, by means of which connection is established between the mobile communication terminal and a base station, the base station being adapted to receive updated information of the storage means of the mobile communication terminal at regular intervals. The present invention is characterised in that the mobile communication terminal is provided with a triggering means, which when activated transmits information from the storage means to a base station or any other receiving means.

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(Fig 1 for publication)

P
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1
6

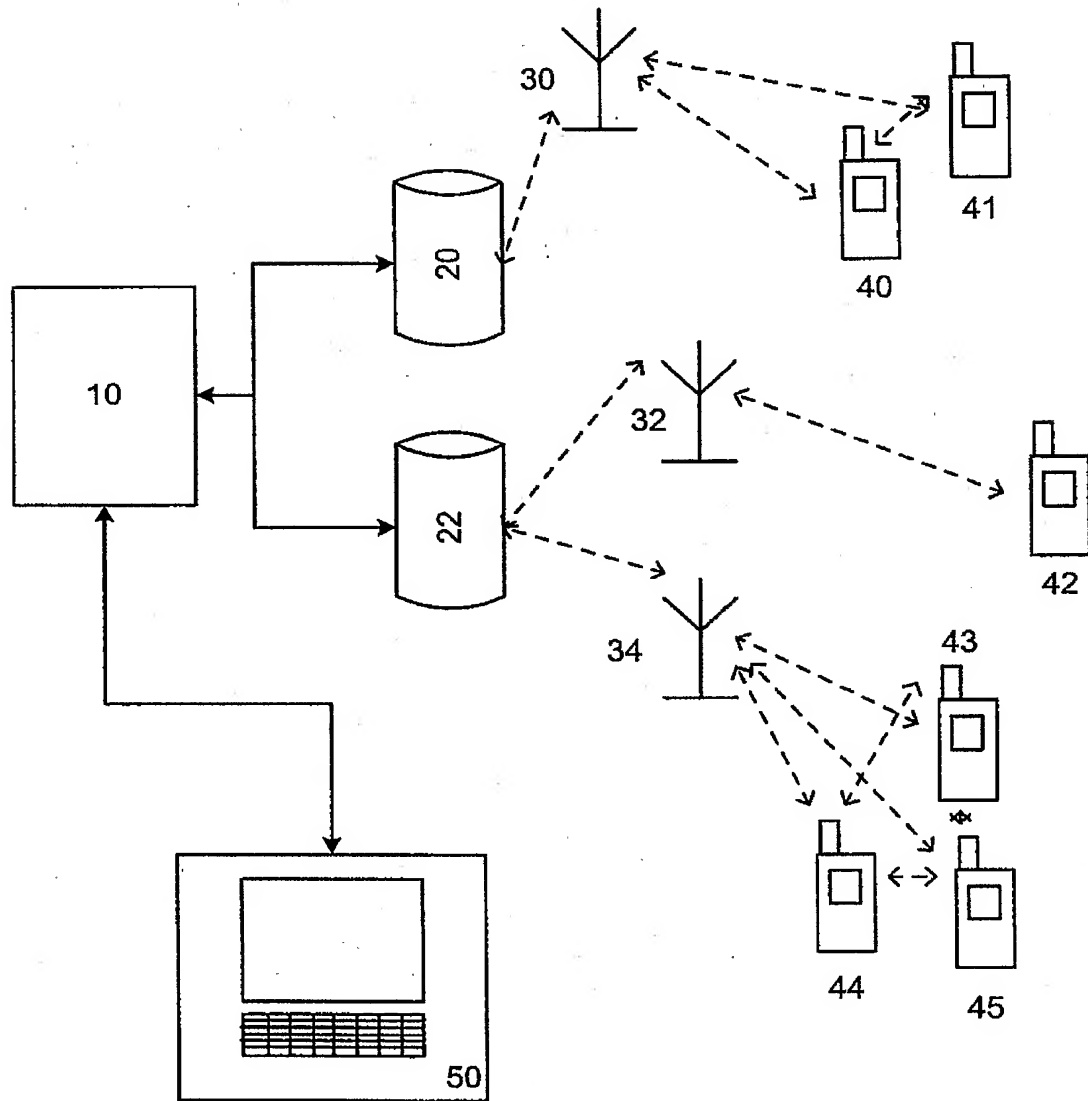


Fig 1

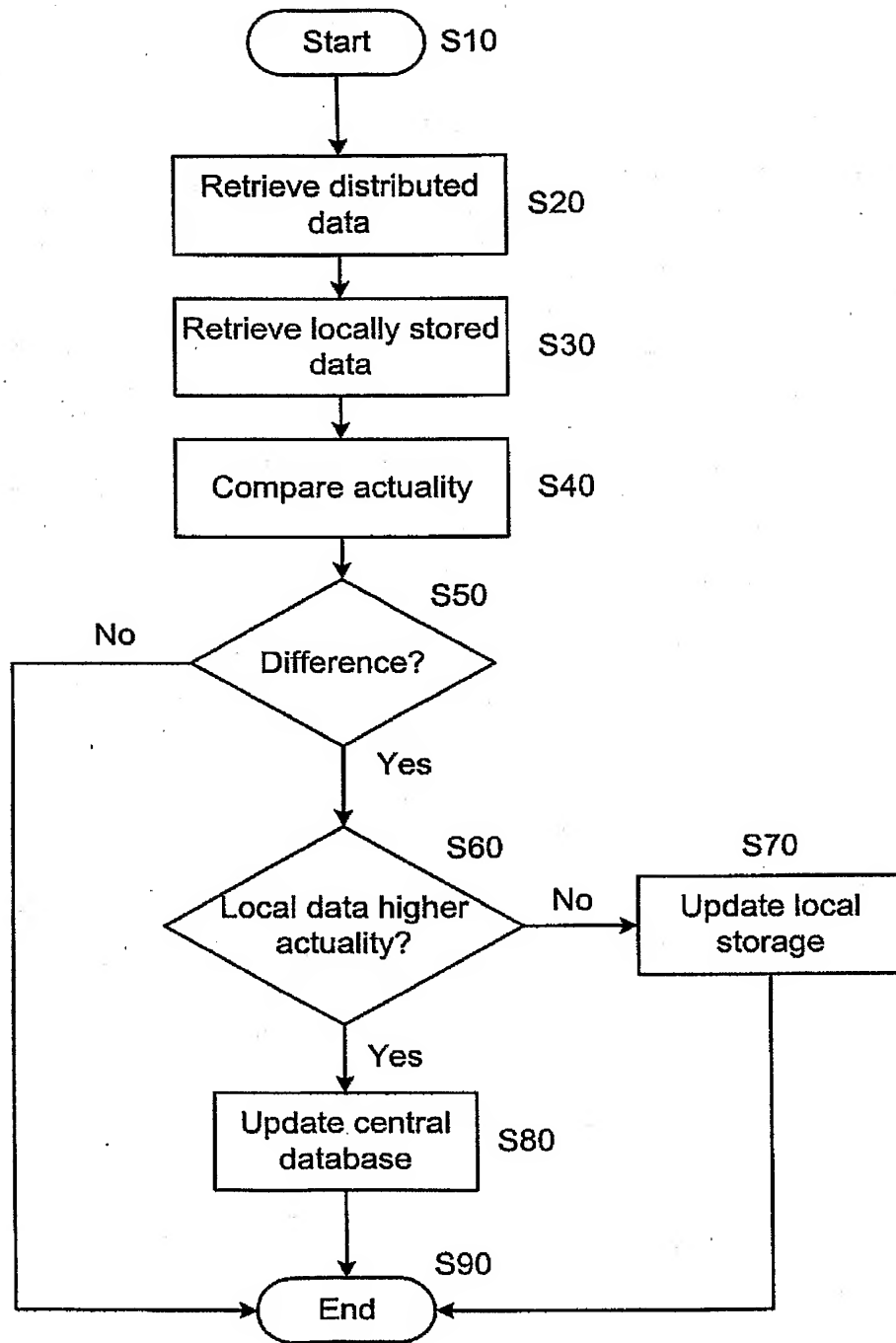


Fig 2

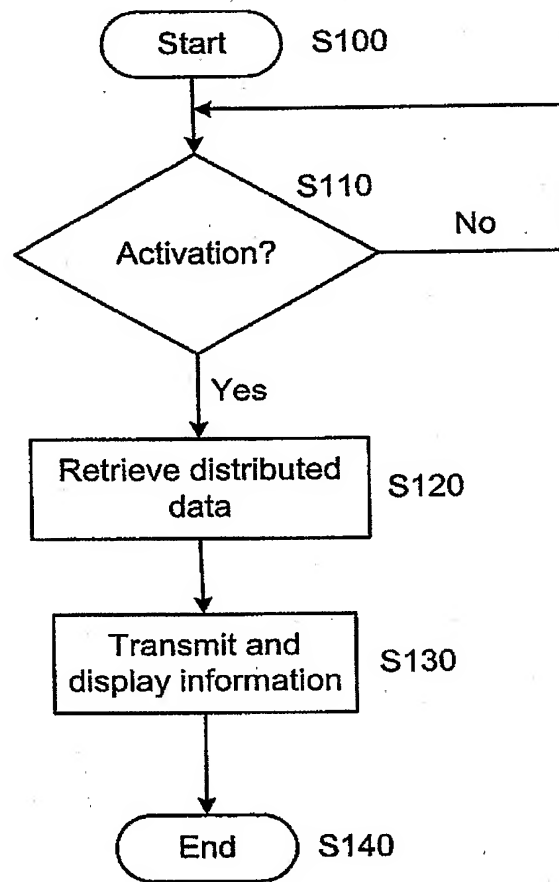


Fig 3